

ABSTRACT

The present invention relates to an apparatus and a method of modifying surface of polymer powder by rotational ultrasonic treatment, more particularly to an apparatus and a method for modifying surface of polymer powder by rotational ultrasonic treatment that pulverize polymer materials, such as rubber, waste rubber, and plastics, and give rotational ultrasonic treatment to the polymer powder to modify its surface, so that the polymer materials can be recycled more efficiently.

The present invention provides an apparatus comprising: a hopper which feeds pulverized polymer powder; a rotor which is linked to the bottom of the hopper as an integrated body, is linked to a driving means through a power transferring means, and rotates by the power transferred from the driving means; a rotating disk which is linked to the bottom of the rotor as an integrated body, and is provided with a downsloped plane; a shaft which extends through centers of the hopper, the rotor, and the rotating disk, and discharges the polymer powder fed from the hopper out of the bottom of the rotating disk; an ultrasonic vibrator which is positioned at the bottom of the rotating disk with a gap, and modifies the polymer powder fed by the shaft using ultrasonic wave; a converting means which is linked to the bottom of the

ultrasonic vibrator, and comprises a booster and a converter; and a generator which is linked to the converting means through a cable.